Figure 1. The MIMO LTI system.

$x[n]$
$e_{I-1}[n]$

I th iteration

Compute $\mathbf{v}_I$ by

$$\mathbf{v}_I = \frac{\alpha \cdot \tilde{\boldsymbol{R}}^{-1} \tilde{\boldsymbol{d}}_{I-1}}{\sqrt{\tilde{\boldsymbol{d}}_{I-1}^{H} \tilde{\boldsymbol{R}}^{-1} \tilde{\boldsymbol{d}}_{I-1}}}$$

$J_{p,q}(\mathbf{v}_I) > J_{p,q}(\mathbf{v}_{I-1})$?

Yes

$e_I[n]$

No

To the
(*I*+1)th
iteration

Update $\mathbf{v}_I$ through a gradient type optimization algorithm such that

$$J_{p,q}(\mathbf{v}_I) > J_{p,q}(\mathbf{v}_{I-1})$$
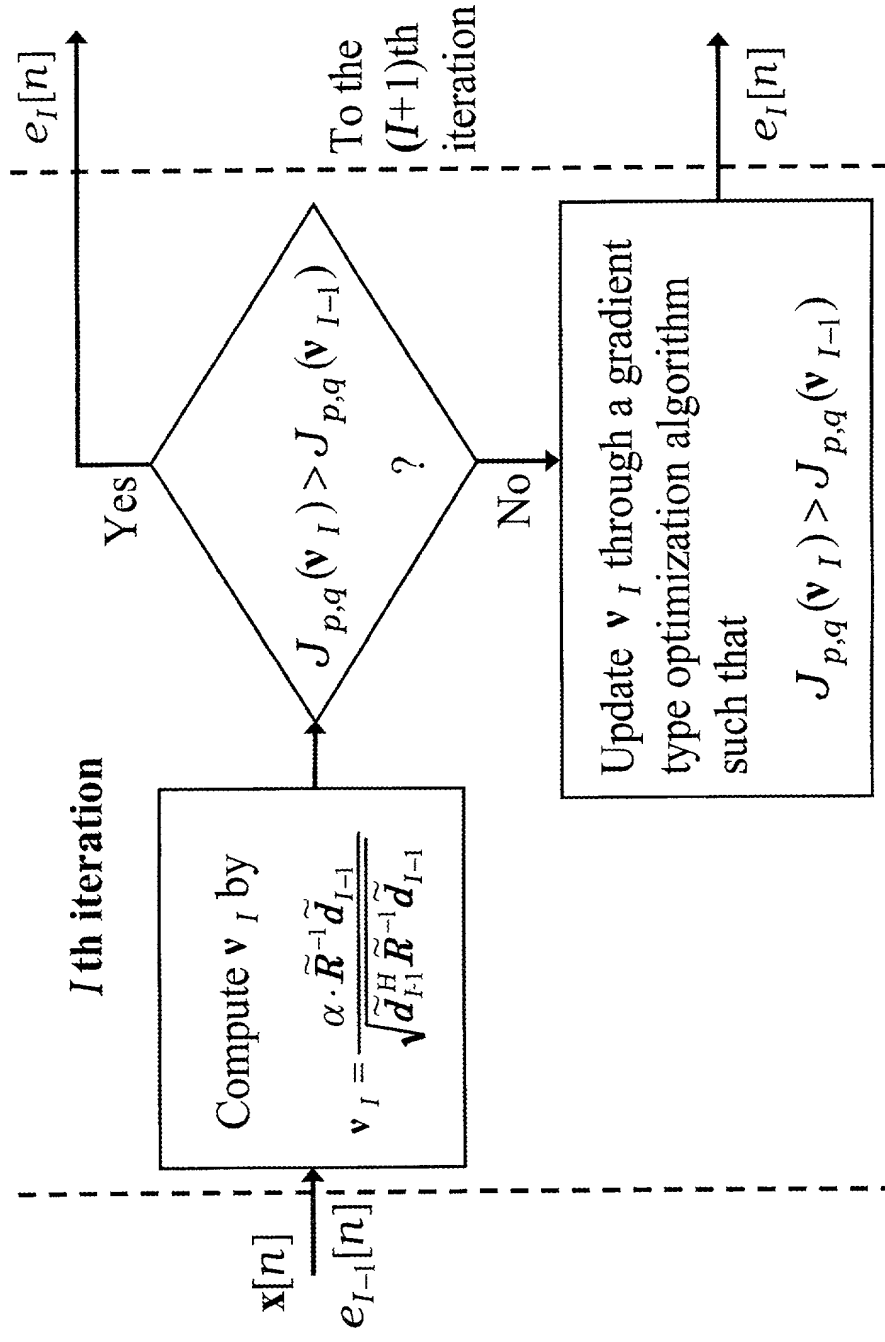
$e_I[n]$
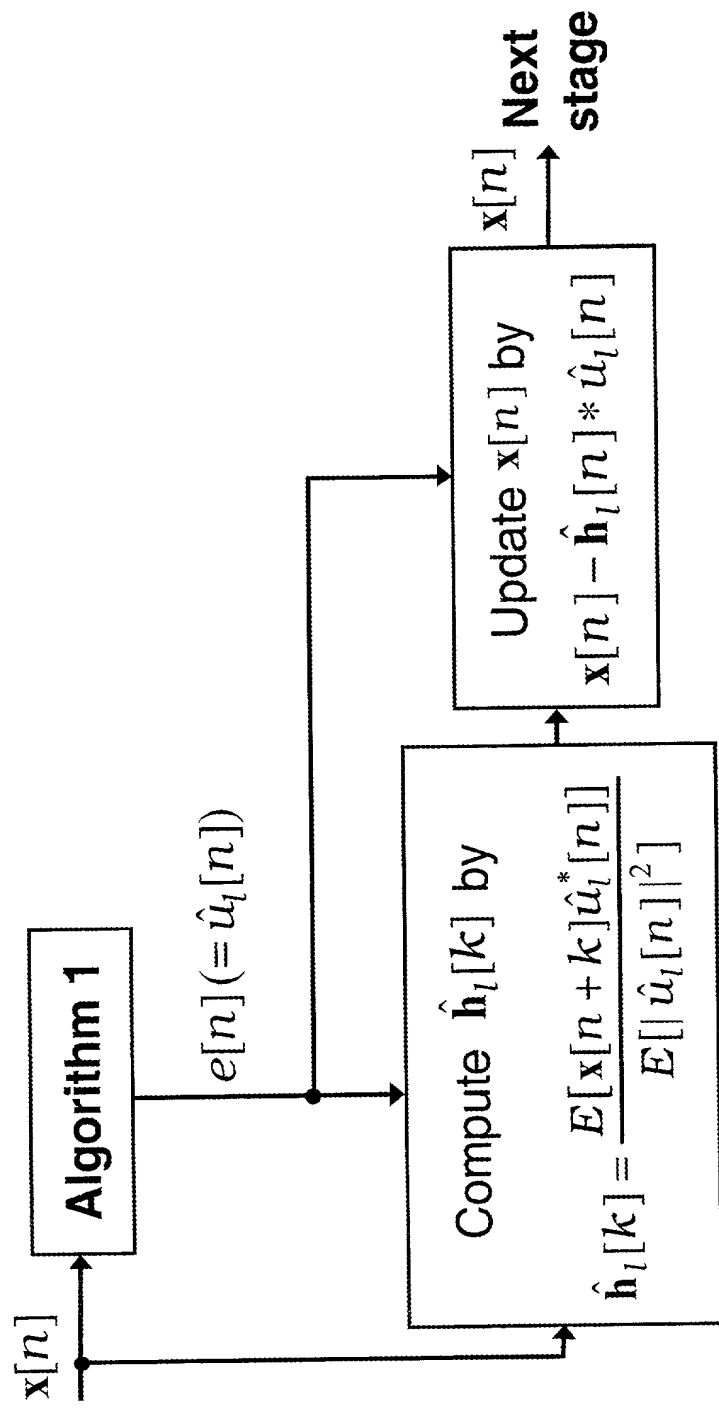
Figure 2. Signal processing of each iteration of Algorithm 1.

Figure 3. Signal processing of each stage of the MSC procedure.